Bicycle

Summary

Bicycle injuries[1] are the second leading cause of injury hospitalization for Washington children 5-14 years old. Bicycle hospitalization rates were highest in the 10-14 age group. Bicycle-related hospitalizations are more common among males than females. During 1990-2001, there was a significant decline in the rate of bicycle-related head injury hospitalizations. The majority of bicycle deaths in Washington occurred to children who were not wearing a bicycle helmet.

Head injury is the most common cause of death and serious disability in bicycle crashes. Correctly wearing a bicycle helmet reduces the risk of a head injury by nearly 85 percent.

Strategies for preventing bicycling injuries should focus on increasing helmet use, teaching children principles of safe bicycling, creating safe places for children to ride a bicycle and educating motorists in sharing the road with bicyclists.

Real Stories of Bicycle Crashes Among Washington Children

Kevin, age 5, was riding down a steep driveway when his bicycle hit a chain stretched across the driveway. His helmet has a dent on the front from the force of hitting the ground. The doctor said the helmet saved his life.

Sally, age 12, died after she rode her bicycle across the road without looking for vehicles. A car struck her, and she was thrown into the windshield of the car. She was not wearing a helmet.

Jonathan, age 8, was showing off by riding with his eyes closed. When he fell, his helmet, instead of his bare head, hit the curb. He had a concussion. His aunt Peggy, who is a trauma nurse, convinced him to wear the bicycle helmet.

Paul, age 13, died after being struck by a car. He had ridden his bicycle through a stop sign and into the path of an oncoming vehicle. He was not wearing a bicycle helmet.

Renee, age 11, rode her bicycle off a jump and fell. She hit her head and the helmet cracked down the middle. She had a slight concussion, but it could have been worse.

[1] Includes injuries due to collisions between a bicycle and a motor vehicle, train, or another bicycle, or by another mishap.

- Children, teens, and adults should wear an approved bicycle helmet every time they ride a bicycle. Bicycle helmets should be replaced after a bicycle crash.
- Bicycle helmets should fit correctly. Here are some things to look for:
  - The rim of the helmet in the front should rest one or two fingers above the eyebrows.
  - The straps of the helmet form a "V" under the ears when buckled. The strap should be snug and comfortable.
  - When the child opens his mouth as wide as possible, they should feel the helmet hug his or her head. If not, it needs to be tightened.
- Cyclists should be restricted to safe areas off the road until they can demonstrate that they know and follow the rules of the road. Supervision is essential until children develop the necessary traffic skills and judgment.
- Teach children the rules of bicycling on roads. Remember that most children under the age of 10 will not have the necessary judgment and skills to fully understand traffic rules and concepts. These include:
  - Ride with traffic flow on the side of the road, not against traffic.
  - Ride as far to the right side of the road as possible.
  - Follow all traffic regulations (e.g., stop at stop signs and red lights).
  - Use appropriate hand signals.
  - Stop and look left, right, and left again before entering a street.
  - Look back and yield to traffic coming from behind before turning left at intersections.
  - Don't ride when it's dark. If riding at dusk, dawn, or in the evening is unavoidable, wear reflective material on clothing, and use lights and reflectors on the bicycle.
- Children's bicycles should be the proper size and should have reflectors on the front, back, and sides. Check local ordinances and state laws for bicycle light and reflector requirements (www.massbike.org/bikelaw).
- Make sure the reflectors are secure, brakes work properly, gears shift smoothly, and tires are tightly secured and properly inflated.

- Form community coalitions to:
  - Provide bicycle helmets to families in need, and provide education to families about how bicycle helmets can prevent bicycle-related injuries.
  - Involve parents and teachers as role models to encourage children to wear bicycle helmets. Parents should develop a contract with their children to always wear a helmet while riding.
  - Work with local businesses that rent bicycles to make sure bicycle helmets are made available with all bicycle rentals.
  - Hold school- or community-wide bicycle skills rodeos. These rodeos, designed to increase bicycle safety awareness and teach the importance of riding responsibly, include bicycle helmet inspections, safety courses, and fun activities for families. Give bicycle helmets as a reward for passing a bicycle safety education class.
  - Encourage enforcement of the law that requires bicyclists to use lights and reflectors when riding at dusk, dawn, or in the evening (RCW 46.61.780).
  - Challenge community leaders to develop bicycle paths and bicycle-friendly communities (e.g., designated bicycle lanes and traffic calming devices).
  - Educate motorists about safely sharing the road with bicyclists and proper behavior around bicyclists.
  - Encourage the adoption and enforcement of laws that require bicyclists to wear a helmet every time they ride. Enforcement strategies include traditional tickets, fix-it tickets, prizes, incentives, and educational classes.
  - Encourage the adoption and enforcement of school policies requiring students who ride to school to wear a helmet.
  - Encourage the introduction of bicycle safety into school curriculum.

Number of Injuries[2]

During 1999-2001, bicycle injuries were the second leading cause of injury hospitalization for children 5-14 years old. Bicycle injuries among Washington children 0-17 years old account for an annual average of:

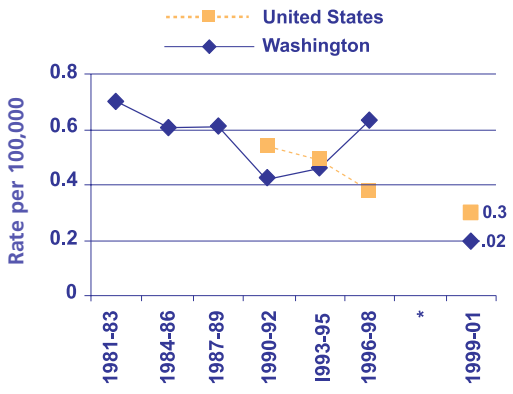
- 3 deaths.
- 206 hospitalizations.
- About 6,800 visits to a hospital emergency room.

Time Trends[3]

There has been little change in the bicycle-related death rates for Washington children 0-17 years old, from the three-year time period of 1981-83 to 1999-2001. Because of the small number of bicycle deaths, there is insufficient data to detect a statistically significant trend in death rates over time.

Bicycle-related death rates in Washington were similar to national rates since 1990[4], except for the years 1996-1998, when rates in Washington were higher.

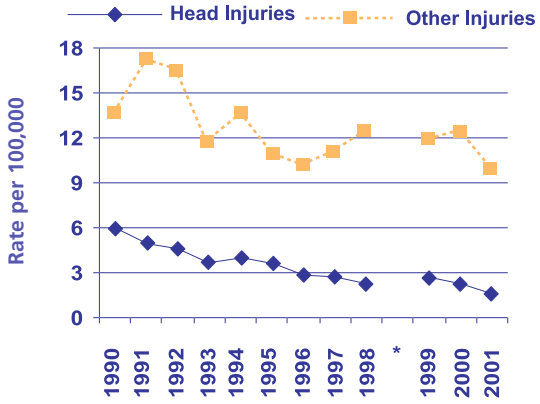
Bicycle-Related Death Rates
Ages 0-17, Washington 1981-2001
United States 1990-2001



* This gap is due to coding changes between 1998 and 1999 which may affect the comparability.

During 1990-2001, there was a statistically significant decline in bicycle-related head injury hospitalization rates for Washington children 0-17 years old, from 6.0 to 1.6 per 100,000.[5] Bicycle-related head injuries that resulted in hospitalization declined at a greater rate than other bicycle-related injuries during the same period.

Bicycle-Related Hospitalization Rates
Ages 0-17, Washington 1990-2001



* This gap is due to coding changes between 1998 and 1999 which may affect the comparability.

Intent

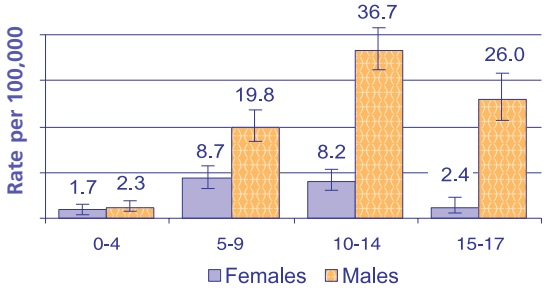
All of the bicycle deaths and hospitalizations to Washington children 0-17 years old were unintentional.

Age and Gender[6]

The highest bicycle-related hospitalization rates in Washington were among those 10-14 years old.

Overall, Washington male children had a bicycle-related hospitalization rate that was almost four times higher than females.

Bicycle Hospitalization Rates
by Age and Gender
Washington 1999-2001



[2] Unless otherwise specified, data are for bicycle injuries among Washington children 0-17 years old during 1999-2001. Rates are per 100,000 children who are Washington residents

[3] See Comparability Ratio section in Appendix D.

[4] National injury death rates for children 0-17 years old are not available prior to 1990.

[5] See Trend Analysis section in Appendix D.

[6] Bicycle-related death rates were not examined by age and gender because of the small number of deaths.

Hour and Month of Injury

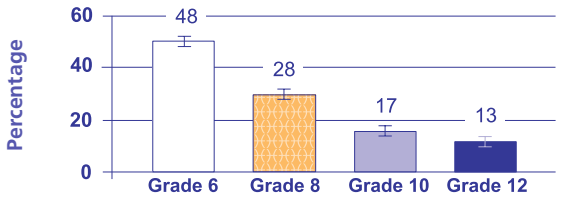
- Six of the nine bicycle deaths of Washington children occurred between 3 p.m. and 9 p.m.
- Six of the nine bicycle deaths also occurred between June and September.

Bicycle Helmet Importance and Use

Research has shown that head injury is the most common cause of death and serious disability in bicycle crashes, and that correctly wearing a bicycle helmet reduces the risk of a head injury by nearly 85 percent. Research has also shown that for every $1 spent on bicycle helmets, $30 is saved in direct medical costs.

Data from the 2002 Washington Healthy Youth Survey show that almost half of sixth graders report wearing a bicycle helmet most of the time or always while riding a bicycle. However, by grade 12 only about 13 percent of students report wearing a bicycle helmet always or most of the time while riding a bicycle.

Reporting Wearing a Bicycle Helmet Most of the Time or Always



Circumstances Surrounding Deaths From Washington Child Death Review Data

Local child death review teams reviewed eight out of the nine bicycle deaths[7] during 1999-2001. Key findings include:

- Three of the fatal bicycle crashes occurred at an intersection, two happened on a city street, and three were on a rural road.
- Only one child was wearing a bicycle helmet at the time of the crash.
- Contributing factors include driver error, vehicle speed, and bicyclist error.
- Impairment by or use of alcohol and/or other drugs was not cited as a factor in any of the bicycle-related deaths.
- Teams concluded that seven of the eight bicycle-related deaths were preventable. For one death, teams were unable to determine preventability.

[7] See Small Numbers section of Appendix D.